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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 09/869,094 Confirmation No. : 1011  
First Named Inventor : Gervasio MERCURI  
Filed : September 18, 2001  
TC/A.U. : 1772  
Examiner : Catherine Simone

Docket No. : 010414.50147US  
Customer No. : 23911

Title : Meat Product Casing Having a Maximum Extensible  
Diameter

**APPEAL BRIEF**

**Mail Stop Appeal Brief-Patents**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

On October 6, 2004, Appellants appealed to the Board of Patent Appeals from the final rejection of claims 45-66. The following is Appellants' Appeal Brief submitted pursuant to 37 C.F.R. §41.37 and the Notice of Non-Compliant Appeal Brief dated February 23, 2005.

**REAL PARTY IN INTEREST**

Ennio Pty Ltd, 2 Pennia Avenue, Glynde, S.A. 5070, Australia

**RELATED APPEALS AND INTERFERENCES**

There are no known Appeals or Interferences known to Appellant related to the above-identified application.

**STATUS OF CLAIMS**

This application contains claims 45-66 with claims 1-44 having been cancelled.

**STATUS OF AMENDMENTS**

Subsequent to the Final Patent Office Action of July 6, 2004 no

amendments were submitted and the status of the claims remains as in the February 19, 2004 Amendment under 37 C.F.R. § 1.111.

### **SUMMARY OF CLAIMED SUBJECT MATTER**

The presently claimed invention concerns a tubular casing having a predetermined maximum extendable diameter. Such tubular products include knitted netting or elastic knitted fabric casing used in cooking and curing processes for meat products. The processed meat is packed in pieces into the tube and held together during the cooking process, although such tubing can also be used on cured meat products. The machines which perform the function of filling the tubular casing usually have a hollow cylindrical mandrill for receiving meat product which is pumped or forced under pressure through the tube into the casing so that the casing is drawn out from the stuffing tube as the meat product is extruded from the tube.

The present invention improves over the prior art by providing a tubular casing which resists expansion beyond a preset diameter. The prior art products have difficulty maintaining a constant diameter of the resultant product as the case is being filled. Normally prior art tube netting is able to expand to a large diameter with a control of the pressure at which the meat product is pumped through the tube being the process for establishing control of the diameter. Therefore, many filled casings have a variable diameter because of the difficulty of controlling the pressure. These diameters cause difficulty with an undesirable product not only with respect to appearance, but also with regard to a requirement that certain slicing machines are set to a particular preset diameter and if the product has variable diameter it is unsuitable for the slicing mechanism.

The present invention accomplishes this control of the tubular casing by providing circumferential threads along the length of the tubular casing (page 6, line 25 to page 7, line 10, Figures 3 and 4, item 16) which become tight at a preset diameter so that the tubular casing has a predetermined diameter when

filled with food products (page 2, lines 12-16). As defined by independent claim 45, the objectives of the present invention are accomplished by extending circumferential threads around the tubular casing and spacing those threads at intervals along the casing. These threads include an elastic thread in combination with a yarn wrapped around the thread with the number of turns of the yarn for any given unit length of the threads being determined as a function of the elastic limit of the elastic thread (page 3 last two lines and page 4, lines 1 and 2, and page 6, lines 3-10). As a result, the circumferential threads become tight after a previously determined amount of stretch because the yarn is straightened to such an extent that the yarn resists tensile force at which point the threads are no longer able to be extended, as claimed, this occurs before the elastic limit of the elastic thread is reached.

The elastic thread has a known elastic limit and the number of turns of the yarn for a given length of the circumferential thread are determined so that the yarn will resist tensile force to therefore reach the tubular structure casing limit. This predetermined limit allows for ease of maintaining substantially constant diameter of the tubular structure casing. The yarn wrapped around the elastic thread forms a helix or spiral as shown in Figures 1 and 2. As the elastic thread is stretched, the spiral expands so that the helix angle increases to enable stretching. At the same time, the diameter of the helix or spiral is reduced and if a number of turns of yarn per centimeter of the thread is limited, then the lengthwise expansion of the helix and its continual reduction in diameter will result in the limit being reached whereby further tensile force applied to the thread is resisted by the yarn. Once this tensile force is resisted by the yarn, the elastic thread will not be able to stretch any further and the elastic limit is determined by the number of turns of yarns per centimeter around the thread (page 6, lines 3-8, Figures 1 and 2, item 12). In one embodiment of claim 46 as shown in Figure 3, the threads are attached to knitted tube 15 (paragraph binding pages 6 and 7). Figure 5 shows the casing as a tubular net 19 with a casing 20 forming an inner lining for the tubular net (page 8, lines 6-10).

The drainer of the casing is 2-4 times diameter of net prior to stretching (page 8, lines 13-16).

### **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

The grounds of rejection to be decided by the Board of Patent Appeals and Interferences ("the Board") include (1) whether independent claim 45 and dependent claims 46, 47, 54,57 and 63-66 are properly rejected under 35 U.S.C. §102 as anticipated by Levin (U.S. Patent No.: 3,866,444; (2) whether claims 45-47, 54-57 and 63-66 are properly rejected under 35 U.S.C. §102 as anticipated by Krauss (U.S. Patent No.: 3,248,905); (3) whether dependent claims 48-52 and 58 are properly rejected under 35 U.S.C. §103 as being unpatentable over Levin '444 in view of Mercuri (U.S. Patent No.: 5,712,007); (4) whether dependent claims 53 and 59-62 are properly rejected under 35 U.S.C. §103 as being unpatentable over Levin '444 in view of Mercuri '007 and in view of Mintz (U.S. Patent No.: 5,855,231); and (5) whether claims 53 and 59-62 are properly rejected under 35 U.S.C. §103 as being unpatentable over Kraus '905 in view of Mercuri '007 and Mintz '231.

### **ARGUMENT**

#### **(1) The rejection of claims 45-47, 54-57 and 63-66 under §102(b) as anticipated by Levin (U.S. Patent No.: 3,866,444)**

The rejection of independent claim 45 as anticipated by Levin '444 in the final rejection is based on an indication that Levin teaches an elastic thread in Figure 5, 12b in combination with a yarn 12c and 12d wrapped around and along the length of the elastic thread. The conclusion of the Examiner is that it is inherent that a number of turns of the yarn are provided around elastic thread for a given length of the circumferential threads so that the circumferential become taut after a predetermined amount of stretch so that the threads become inextensible before the elastic limit of the thread is reached.

The reference to Levin has a wrapping of a strand of rubber using a first wrapping thread in a first direction and a second wrapping in an opposite

direction. Appellants submit that there is no indication in Levin concerning a limit on the number of turns of yarn for a given length of elastic thread. The specification of Levin particularly states that when extended, the diameter of the rubber decreases and the covered strands become spaced apart. There is no indication that the stretching limit results from the outer threads being placed in tension. Instead, the stretching limit of the elastic thread itself is what determines the limit of the stretch in Levin. The yarn wrapping of Levin will accommodate any stretch which is allowed by the elastic thread and not by any tension on the outer threads. Additionally, the further limiting feature of independent claim 45 that the thread becomes “inextensible before the elastic limit of the elastic thread is reached” still further defines over the reference to Levin. Additionally, the given length of circumferential threads are claimed as “determined as function of an elastic limit of the elastic thread”. It can be seen that there is a clear nexus between the number of threads and the amount of extension in the present invention and it can be further seen that once the elastic limit of the elastic thread is determined, then the number of turns of yarn can be determined for each length thread in order that the “maximum” extent of the yarn is reached before the “maximum” extent of the thread, in order to provide the desired result.

This specific limitations of independent claim 45 are not available from Levin. Levin discloses a standard method commonly used in the industry for wrapping a strand of rubber with cotton thread. The purpose of the cotton is to cover the rubber thread for use in food applications and is not used, designed or able to restrict the extent of the stretch of the elastic thread. The windings are such that the elastic is stretched to the same extent that it would be stretched without the covering of Levin.

Thus, it is submitted that claim 45 defines over any showing of Levin.

Concerning dependent claim 46, Appellants submit that item 10 in Figure 1 of Levin refers to the entire assembly. The mesh fabric referred to at column 2, line 39 is the combination of the longitudinal and circumferential members 11

and 12. Additionally, Appellants submit that the Examiner has incorrectly stated as the reference to Levin as an open net which would not be impermeable to food products. Claims 57, 64, 65 and 66 are also submitted as allowable as the longitudinal threads of Levin are secured between circumferential members and are not shown or described as fixed to the outer surface of a knitted tub as claimed. Remaining dependent claims depend from and contain all of the limitations of independent claim 45.

**(2) The rejection of claims 45-47, 54-57, 63-66 under §102 as anticipated by Krauss et al. (U.S. Patent No.: 3,248,905)**

With respect to the rejection of claims 45-47, 54-57 and 63-66 as anticipated by Krauss '905, Krauss has been cited for showing a limited number of turns of the yarn in Figure 4 around the elastic thread. There is no showing of a relationship between the number of turns and the elastic limit of the elastic thread. Furthermore, there is no indication that the thread becomes taut after a predetermined amount of stretch so that the circumferential thread becomes "inextensible before the elastic limit of the elastic thread is reached".

**(3) The rejection of claims 48-52 and 58 under under 35 U.S.C. §103 over Levin or Krauss in view of Mercuri (5,712,007)**

With respect to the rejection of claims 48-52 and 58 over the combination of Levin '444 in view of Mercuri '007 Appellants submit that the proposed combination necessary to meet the claimed limitations are not obvious variations to one of skill in the art having the references of record before them.

The reference to Mercuri '007 is concerned with an elastic circumferential thread which can be a combination of a non-extendible thread and an elastic thread but there is no disclosure of yarn wrapped around or along the length of the thread even if combined with Levin or Krauss

**(4) The rejection of claims 53 and 59-62 under 35 U.S.C. §103 over Levin or Krauss in view of Mintz (5,855,231)**

With respect to the rejection of claim 53 and 59-62 over the combination of Levin or Krauss and Mintz, Appellants submit that the proposed combination necessary to meet the claim limitations are not obvious variations to one skilled in the art having the records or references before them.

The reference to Mintz '231 uses an elasticized or non-elasticized yarn with a non-elasticized yarn including synthetic thread which has no stretch capability. The only stretching available to any knitted product in Mintz is due to the stretchability of the resultant product. There is no disclosure in Mintz of the yarn wrapped around an elastic thread and there is only a reference to either a single strand of rubber which can be knit into a structure or a single strand or rubber wrapped around two opposing wound threads. The rate of wrapping is such that the elasticity is not limited by the outer wrapping. For these reasons, Appellants submit that the dependent claim 38-53 and 58-62 are not properly rejected over any combination of either Levin '444 or Krauss '905 with Mercuri '077 or Mintz '231.

#### **Claims 46-57, 63 and 64**

Dependent claims 46-57, 63 and 64 are separately patentable from independent claim 45 as they refer to the particulars of the knitted tube with the circumferential threads attachment or additional fibrous casing coextensive with the tubular knit or the defined relationship between the diameters of the threads becoming taut when equal to the diameter of the tubular fibrous casing of claim 48. Dependent claims 50 and 51 particularly relate features of the fibrous casing which, in addition to being separately patentable, are not available from the references or any combination of the references. The dependent claim 54-57, 63 and 64 relate to the tubular casing and securing of the circumferential and longitudinal threads with respect to the knitted tube and the manner of securing. Thus, these dependent claims are separately patentable and not available from the references

and accordingly do not stand or fall with independent claim 45. Even if the references, for purpose of argument, were to show the limitation of claim 45, the features of claims 46-57, 63 and 64 would not be obvious.

#### **APPENDIX**

A copy of the claims are attached as an Appendix.



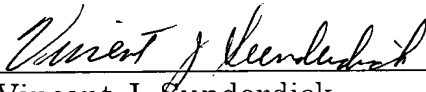
**CONCLUSION**

Therefore, Appellants respectfully request that the decision of the Examiner in rejecting claims 45-66 should be REVERSED.

This Appeal Brief is accompanied by a check in the amount of \$340.00 in payment of the required appeal fee. This amount is believed to be correct, however, the Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 05-1323, Docket No.: 010414.50147US. A triplicate copy of this Appeal Brief is attached.

Respectfully submitted,

March 23, 2005

  
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Enclosure: Appendix

**APPENDIX**

45. A tubular structure casing for use with food products, comprising:  
circumferential threads extending around a periphery of a tubular casing and spaced at intervals along said tubular casing, said circumferential threads comprising an elastic thread in combination with a yarn wrapped around and along a length of said elastic thread, wherein a number of turns of said yarn are provided around said elastic thread for a given length of said circumferential threads are determined as a function of an elastic limit of said elastic thread so that said circumferential threads become taut after a predetermined amount of stretch due to said yarn being straightened to an extent where said yarn resists tensile force whereupon said circumferential threads become inextensible before the elastic limit of said elastic thread is reached.

46. A tubular casing according to claim 45, further comprising a knitted tube with said circumferential threads attached to said knitted tube.

47. A tubular casing according to claim 45, wherein said tubular casing is a tubular net comprising radially spaced longitudinal threads in connection with said circumferential threads and wherein said circumferential threads comprise a continuous thread extending spirally along said tubular casing.

48. A tubular casing according to claim 47, further comprising a tubular fibrous casing located within a co-extensive with said tubular net, said fibrous casing comprising an inner liner for said tubular net.

49. A tubular casing according to claim 48, wherein said circumferential threads become taut at a diameter which is substantially equal to the diameter of said tubular fibrous casing when it is filled.

50. A tubular casing according to claim 49, wherein the diameter of said tubular fibrous casing is greater than the diameter of said tubular net prior to stretching of said circumferential threads so that said circumferential threads apply compressive force to said fibrous casing as it is being filled.

51. A tubular casing according to claim 50, wherein the diameter of said fibrous casing is between 2 and 4 times greater than the diameter of said tubular net prior to stretching of said circumferential threads.

52. A tubular casing according to claim 50, wherein the diameter of said tubular net when said circumferential threads become taut is smaller than the diameter of said fibrous casing so that said circumferential and longitudinal threads press inwardly against said fibrous casing.

53. A tubular casing according to claim 48, wherein said fibrous casing is folded flat with at least one pleat so that its width is reduced to fit within said tubular net.

54. A tubular casing according to claim 45, wherein said tubular casing is a knitted tube that is stretchable and impermeable to said food products and longitudinal threads in combination with said circumferential threads, said circumferential and longitudinal threads secured to and spaced, respectively, along and around said knitted tube, said knitted tube being stretchable after said circumferential threads become taut so that said circumferential and longitudinal threads press into a surface of said food product so that a quilted surface pattern is applied to the surface of said food products in contact with said tubular casing.

55. A tubular casing according to claim 54, wherein said circumferential and longitudinal threads are secured to said first tubular portion during knitting of said knitted tube.

56. A tubular casing according to claim 54, wherein said circumferential threads are secured to said knitted tube so as to form a continuous spiral along said knitted tube, said longitudinal threads comprise interlocking loop stitches, each said loop stitch extending between said circumferential threads.

57. A tubular casing according to claim 54, wherein said circumferential and longitudinal threads are secured to an outer surface of said knitted tube.

58. A tubular casing according to claim 51, wherein the diameter of said tubular net when said circumferential threads become taut is smaller than the diameter of said fibrous casing so that said circumferential and longitudinal threads press inwardly against said fibrous casing.

59. A tubular casing according to claim 49, wherein said fibrous casing is folded flat with at least one pleat so that its width is reduced to fit within said tubular net.

60. A tubular casing according to claim 50, wherein said fibrous casing is folded flat with at least one pleat so that its width is reduced to fit within said tubular net.

61. A tubular casing according to claim 51, wherein said fibrous casing is folded flat with at least one pleat so that its width is reduced to fit within said tubular net.

62. A tubular casing according to claim 52, wherein said fibrous casing is folded flat with at least one pleat so that its width is reduced to fit within said tubular net.

63. A tubular casing according to claim 55, wherein said circumferential threads are secured to said knitted tube so as to form a continuous spiral along the length of said knitted tube, said longitudinal threads comprise interlocking loop stitches, each said loop stitch extending between said circumferential threads.

64. A tubular casing according to claim 55, wherein said circumferential and longitudinal threads are secured to the outer surface of said knitted tube.

65. A tubular casing according to claim 56, wherein said circumferential and longitudinal threads are secured to the outer surface of said knitted tube.

66. A tubular casing according to claim 63, wherein said circumferential and longitudinal threads are secured to the outer surface of said knitted tube.